

**IN THE CLAIMS**

Please amend the claims as follows:

1. (Cancelled)

2. (Cancelled)

3. (Currently Amended) A method of mapping virtual memory to physical memory, comprising:

identifying two or more contiguous pages in virtual memory to be mapped to physical memory;

determining a size in pages of the two or more contiguous pages of virtual memory;  
determining an alignment in pages of the two or more contiguous pages of virtual memory;

searching a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

mapping the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

The method of claim 1, wherein searching a free bit data structure comprises processing a word comprising free bits using a population count instruction to determine the number of free bits in the word.

4. (Original) The method of claim 3, wherein the population count instruction is a vector instruction operable to operate on multiple words per instruction issue.

5. (Currently Amended) A method of mapping virtual memory to physical memory, comprising:

identifying two or more contiguous pages in virtual memory to be mapped to physical memory;

determining a size in pages of the two or more contiguous pages of virtual memory;

determining an alignment in pages of the two or more contiguous pages of virtual memory;

searching a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

mapping the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

The method of claim 1, wherein searching a free bit data structure comprises processing a word comprising free bits using a leading bit count instruction to determine the number of leading bits of a particular value.

6. (Currently Amended) The method of claim 5, wherein the population count leading bit count instruction is a vector instruction operable to operate on multiple words per instruction issue.

7. (Currently Amended) A method of mapping virtual memory to physical memory, comprising:

identifying two or more contiguous pages in virtual memory to be mapped to physical memory;

determining a size in pages of the two or more contiguous pages of virtual memory;

determining an alignment in pages of the two or more contiguous pages of virtual memory;

searching a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

mapping the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

The method of claim 1, wherein searching a free bit data structure comprises searching for a number of consecutive free bits matching the determined size in pages of the two or more contiguous virtual memory pages to be mapped.

8. (Currently Amended) A method of mapping virtual memory to physical memory, comprising:

identifying two or more contiguous pages in virtual memory to be mapped to physical memory;

determining a size in pages of the two or more contiguous pages of virtual memory;

determining an alignment in pages of the two or more contiguous pages of virtual memory;

searching a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

mapping the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

~~The method of claim 1, wherein searching a free bit data structure comprises counting consecutive free bits, wherein counting the number of free bits found is started only from bits representing a page number that is an integer multiple of the determined alignment.~~

9-11. (Cancelled)

12. (Currently Amended) A memory management system comprising a virtual memory mapping module, the virtual memory mapping module operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;

search a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

map the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

~~The memory management system of claim 10, wherein searching a free bit data structure comprises processing a word comprising free bits using a population count instruction to determine the number of free bits in the word.~~

13. (Original) The memory management system of claim 12, wherein the population count instruction is a vector instruction operable to operate on multiple words per instruction issue.

14. (Currently Amended) A memory management system comprising a virtual memory mapping module, the virtual memory mapping module operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;

search a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

map the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

The memory management system of claim 10, wherein searching a free bit data structure comprises processing a word comprising free bits using a leading bit count instruction to determine the number of leading bits of a particular value.

15. (Currently Amended) The memory management system of claim 14, wherein the population count leading bit count instruction is a vector instruction operable to operate on multiple words per instruction issue.

16. (Currently Amended) A memory management system comprising a virtual memory mapping module, the virtual memory mapping module operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;

search a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

map the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

~~The memory management system of claim 10, wherein searching a free bit data structure comprises searching for a number of consecutive free bits matching the determined size in pages of the two or more contiguous virtual memory pages to be mapped.~~

17. (Currently Amended) A memory management system comprising a virtual memory mapping module, the virtual memory mapping module operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;

search a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

map the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

~~The memory management system of claim 10, wherein searching a free bit data structure comprises counting consecutive free bits, wherein counting the number of free bits found is started only from bits representing a page number that is an integer multiple of the determined alignment.~~

18-20. (Cancelled)

21. (Currently Amended) A computerized system having a paged memory system, the paged memory system operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;  
search a free bit data structure to locate a free section of contiguous physical memory  
having the desired size and alignment; and  
map the two or more pages in virtual memory to the located free section of contiguous  
physical memory via a single mapping;

~~The computerized system of claim 19~~, wherein searching a free bit data structure comprises processing a word comprising free bits using a population count instruction to determine the number of free bits in the word.

22. (Original) The computerized system of claim 21, wherein the population count instruction is a vector instruction operable to operate on multiple words per instruction issue.

23. (Currently Amended) A computerized system having a paged memory system, the paged memory system operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;  
determine a size in pages of the two or more contiguous pages of virtual memory;  
determine an alignment in pages of the two or more contiguous pages of virtual memory;  
search a free bit data structure to locate a free section of contiguous physical memory  
having the desired size and alignment; and  
map the two or more pages in virtual memory to the located free section of contiguous  
physical memory via a single mapping;

~~The computerized system of claim 19~~, wherein searching a free bit data structure comprises processing a word comprising free bits using a leading bit count instruction to determine the number of leading bits of a particular value.

24. (Currently Amended) The computerized system of claim 23, wherein the population count leading bit count instruction is a vector instruction operable to operate on multiple words per instruction issue.

25. (Currently Amended) A computerized system having a paged memory system, the paged memory system operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;

search a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

map the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

~~The computerized system of claim 19, wherein searching a free bit data structure comprises searching for a number of consecutive free bits matching the determined size in pages of the two or more contiguous virtual memory pages to be mapped.~~

26. (Currently Amended) A computerized system having a paged memory system, the paged memory system operable to:

identify two or more contiguous pages in virtual memory to be mapped to physical memory;

determine a size in pages of the two or more contiguous pages of virtual memory;

determine an alignment in pages of the two or more contiguous pages of virtual memory;

search a free bit data structure to locate a free section of contiguous physical memory having the desired size and alignment; and

map the two or more pages in virtual memory to the located free section of contiguous physical memory via a single mapping;

~~The computerized system of claim 19, wherein searching a free bit data structure comprises counting consecutive free bits, wherein counting the number of free bits found is started only from bits representing a page number that is an integer multiple of the determined alignment.~~

27. (Cancelled)